UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GARY L. SCHROEDER,
TAIYE PHILIPS ORIARAN, EDWARD J. YOCK,
BRADLEY G. SCHMIDT, MICHAEL E. HUSS and
HENRY S. OSTROWSKI

Appeal 2006-2400
Application 10/051,814
Technology Center 1700

Decided: December 1, 2006

Before KIMLIN, PAK, and WARREN, *Administrative Patent Judges.*

PAK, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal from the Examiner's final rejection of claims 24 through 33. Claims 1 through 23 and 34 through 39, the other claims pending in the above-identified application, stand withdrawn from consideration by the Examiner as being directed to a non-elected invention. We have jurisdiction pursuant to 35 U.S.C. § 134.

I. APPEALED SUBJECT MATTER

The subject matter on appeal is directed to a method of making a moist wipe (a wet wipe) for delivering a cationic functional agent. *See* Specification at 1. The method involves conventionally forming a bonded non-woven web comprising cellulosic fibers. *See* Specification at 10. The components employed, including fibers and binder used, are selected such that the web has an anionic surface charge not greater than 1.2 meq per kilogram. *Id.* According to the Appellants:

> The constituent wood pulp fibers used to manufacture the nascent web will often exhibit substantial anionic surface charge, which may be in excess of that specified above. The anionic surface charge of the nascent web can vary depending on such factors as the type of wood in the pulp, the pulping bleaching process used, the type of cellulosic and/or re-generated cellulosic fibers used, or the particular combination of cellulosic and synthetic fibers chosen. Also the presence of wood pulp fines can impart a significantly higher surface charge than long fibers. However[,] we find that in many cases the consolidated web will exhibit an anionic surface charge considerably reduced from the charge on the constituent fibers. Therefore, the combination of furnish and binder is selected to compensate for the surface charge on the fibers so that the form dry web has a surface charge within the specified range. The surfactant in the binder should be non-ionic, cationic or a mixture of the two in order to produce a web having the desired surface charge of not greater than about 1.2 milli-equivalents per kilogram, dry weight. Specification at 10-11.

To the resulting dry non-woven web, "about one to three times the dry weight of the web an aqueous imbuement carrying a cationic function agent at a concentration of about 6 mili-equivalents per liter or less" is introduced. *See* Specification at 12-13 and claim 24. Details of the appealed subject

matter are recited in representative claims 24, 25, 26 and 27 which are reproduced below:

> 24. A method for making a moist wipe for delivering a cationic functional agent in an aqueous medium to an animate or inanimate surface for a desired efficacy, which comprises forming a bonded non-woven web comprising cellulosic fibers and having an anionic surface charge not greater than 1.2 meq per kilogram, and adding about one to three times the dry weight of the web an aqueous imbuement carrying a cationic functional agent at a concentration of about 6 milli-equivalents per liter or less and being partially adsorbed by the web, whereby the amount of said agent remaining in the free imbuement is deliverable to the surface in sufficient quantity for the desired efficacy.
>
> 25. The method according to claim 24 wherein said cationic functional agent is a monomeric cationic functional agent.
>
> 26. The method according to claim 24 or claim 25 further including applying to at least one surface of said web a polymeric binder containing a non-ionic surfactant.
>
> 27. The method according to claim 24 or claim 25 further including applying to at least one surface of said web a polymeric binder containing a cationic surfactant.

II. PRIOR ART

As evidence of unpatentability of the claimed subject matter, the Examiner relies upon the following references:

Mochizuki	US 4,675,347	Jun. 23, 1987
Noda	US 4,785,030	Nov. 15, 1988
Pregozen	US 5,141,803	Aug. 25, 1992
Rabasco	US 2002/0099113 A1	Jul. 25, 2002

III. REJECTION

The appealed claims stand rejected as follows:

1) Claims 24 through 30 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Pregozen and Noda;

2) Claims 31 and 32 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Pregozen, Noda, and Rabasco; and

3) Claims 31 and 33 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Pregozen, Noda, and Mochizuki.

IV. FINDINGS AND CONCLUSIONS

We have carefully considered the claims, Specification and prior art references, including the arguments advanced by both the Appellant and the Examiner in support of their respective positions. This review has led us to conclude that the Examiner's §103 rejections are well founded. Accordingly, we will sustain the Examiner's decision rejecting claims 24 through 33 under §103 for the factual findings and conclusion set forth by the Examiner in the Answer and below.

Under 35 U.S.C. §103, the obviousness of an invention cannot be established by combining the teachings of the prior art references absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). This does not mean that the cited prior art references must specifically suggest making the combination. *B.F. Goodrich Co. V. Aircraft Braking Systems Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996); *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988). Rather, the test for

obviousness is what the combined teachings of the prior art references would have suggested to those of ordinary skill in the art. *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In evaluating the prior art references for a suggestion, it is proper to take into account not only the specific teachings of the references, but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

Applying the above obviousness test to the present circumstance, we determine that the prior art references as a whole would have suggested the claimed subject matter within the meaning of 35 U.S.C. §103. As correctly found by the Examiner:

> Pregozen discloses a method for making a non-woven wet wipe impregnated with an aqueous composition (See column 1, lines 10-12), in which a cationic biocide (claimed cationic functional agent) is added to a preservative system to **enhance** the antimicrobial effect of the combination of sorbic acid and citric acid in the a preservative system (See column 2, lines 51-55). The moistened wipe may be used for cleaning e.g. kitchen counter tops, toilet bowls, sinks or delivering active ingredients such as sunscreens, insect repellants to an animate or inanimate surface (See column 5, lines 44-50). The moistened wipes are made by applying the aqueous composition to a flexible absorbent nonwoven substrate in an amount of about two to five times the dry weight of the web an aqueous imbuement carrying a polymeric cationic biocide having [a] molecular weight of 1000-1400 (See column 3, lines 61-63) or monomeric cationic biocide such as cetylpyridinium chloride (See column 7, lines 19, 27-35) at a concentration of about 0.03-0.24 % weight (active basis) of the aqueous composition (which is less than 6 milli-equivalents per liter) (See column 4, lines 10-13). The nonwoven substrate employed in the moistened wipe is a

> fibrous flexible absorbent nonwoven sheet material consisting essentially of **cellulosic** fibers or blends of cellulosic fibers such as rayon and cotton fibers or blends of such cellulosic fibers with one or more synthetic fibers such as polypropylene, polyethylene, polyester and nylon fibers (See column 4, lines 63-68; column 5, line 1). [Emphasis original.] Answer at 2-3.

As acknowledged by the Examiner (Answer 4), Pregozen does not mention a cellulosic fiber containing web having the claimed anionic surface charge and a polymer binder containing a cationic surfactant. The dispositive question is, therefore, whether one of ordinary skill in the art would have been led to employ the above missing features in the method of the type described in Pregozen. On this record, we answer this question in the affirmative.

As indicated *supra*, Pregozen teaches preparing a bonded non-woven web used as a wet wipe (moist wipe) substrate. Specifically, Pregozen teaches that:

> The substrate employed in the moistened wipe of the invention is a fibrous flexible absorbent nonwoven sheet material consisting essentially of cellulosic fibers or blends of cellulosic fibers such as rayon and cotton fibers or blends of such cellulosic fibers with one or more synthetic fibers such as polypropylene, polyethylene, polyester and nylon fibers. Such blends may also include wood pulp fibers. Binders generally are employed to bind together the fibers thus ensuring that the finished nonwoven sheet has adequate **wet strength**. Such binders are, for example, acrylic polymers, ethylene vinyl acetate polymers, vinyl acetate copolymers and **styrene butadiene polymers**. Such nonwoven materials and processes for their manufacture are well known in the art. Processes for manufacturing such nonwoven sheet materials include carding, air laying, water entanglement, thermal bonding and **wet laying**. [Emphasis added.] Pregozen at col. 4, ll. 63-68 and col. 5, ll. 10-11.

Pregozen goes onto exemplify a flexible absorbent nonwoven fabric made of a 70/30 blend of rayon (cellulosic fibers) and polyester (synthetic) fibers saturated with an aqueous dilution of an acrylic binder (available commercially from Rohm and Haas Company, Inc). *See* Pregozen, Example 1, column 6, lines 43-51. The amount of the binder used is "such as to provide 20% w/w of the finished nonwoven fabric." *See* Pregozen, column 6, lines 51-54. Although Pregozen does not mention the claimed anionic surface of charge not greater than 1.2 meq per kilogram, it does teach employing significant proportions of synthetic fibers and a latex binder as indicated supra, thus impliedly suggesting one of ordinary skill in the art to significantly lower the anionic charge associated with the cellulosic fiber portion of a flexible absorbent nonwoven material. [1] Indeed, Noda, in making the flexible absorbent nonwoven sheet of the type discussed in Pregozen, teaches that:

> The cationic latex compositions herein are especially useful as additive binder system in making cloth like paper and other nonwoven products. There are three important physical properties of clothlike paper products. These properties are softness, absorbency, particularly of aqueous fluids, and strength, particularly strength when wet....
>
> ...
>
> The cellulosic fibers used in papermaking are negatively charged. Since the water-soluble wet-strength resins are

[1] Based on the Appellants' own disclosure discussed above regarding the effect of synthetic fibers and polymer binders in reducing the anionic surface charge of cellulosic fibers, we are of the view that it is not unreasonable to shift the burden to the Appellants to show that the nonwoven fabric exemplified in Pregozen does not possess the claimed anionic surface charge.

> cationic (positively charged), they are deposited and retained well when directly added to the aqueous pulp slurry. Such "wet-end addition" is highly desirable in papermaking. Subsequently in the papermaking process, these resins cross-link and eventually become insoluble in water. When this occurs, the wet-strength resin acts as a "glue" to hold the fibers of the paper together. This results in the desired wet-strength property. Pregozen at col. 1, ll. 51-57 and col. 2, ll. 14-25.

It can be inferred from the above teaching that the anionic surface charge on a flexible absorbent nonwoven product containing a cellulosic material is a result effective variable (affects the binding of a cationic material) and is reduced upon reacting with a cationic polymer binder. *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980)("[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art."). Moreover, the Appellants do not dispute the Examiner's finding that:

> Noda et al teach that cationically modified styrene-butadiene latexes[,] especially with nonionic or preferably cationic surfactants added to the latex to have adequate colloidal stability, can be used as a binder for treating cellulosic fibers to provide the desired wet strength by binding to negatibvely [sic. negatively] charged cellulosic fibers (See column 1, lines 13-18, 51-57; column 2, lines 3-25, 54-69). In other words, Noda et al teach that cationically modified styrene-butadiene latexes especially with nonionic or preferably cationic surfactants are suitable for treating cellulosic fibers to provide the desired wet strength. [Emphasis original.] Answer at 4.

Given Pregozen's and Noda's interest in improving the wet strength of a flexible absorbent nonwoven product and Noda's teaching regarding the loading and/or binding effect of the anionic surface charge of a nonwoven

product on a cationic material, we concur with the Examiner that one of ordinary skill in the art would have been led to employ the polymer binder of the type discussed in Noda as the binder for forming the nonwoven product of the type discussed in Pregozen, motivated a reasonable expectation of successfully obtaining a nonwoven product having an improved wet strength and an optimum anionic surface charge, such as that claimed. *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988)

The Appellants argue that Pregozen does not teach or suggest using its nonwoven substrate to deliver a cationic functional agent (Br. 7). In particular, the Appellants take the position that Pregozen teaches using "cationic biocides as a preservative for the substrate rather than as any functional additive to be delivered." *Id.* The Appellants' position is not well taken.

As indicated *supra*, Pregozen teaches that its moistened wipe is prepared by applying various aqueous compositions containing, *inter alia*, an active agent such as a cationic biocide in the claimed amount to the flexible absorbent nonwoven substrate. *See* also Pregozen, column 5, lines 13-42. Pregozen specifically teaches that the resulting wet wipe is used to deliver various active agents including "a cationic biocide to animate or inonius surfaces . . . ." *See* Pregozen, column 7, lines 47-48 and columns 43-50.

The Appellants separately argue the limitation recited in claim 25. Specifically, the Appellants argue that Pregozen teaches away from employing a monomeric cationic functional agent, such as benzalkonium

chloride. *See* Brief 7-8. In support of this position, the Appellants refer to a moistened wipe having aqueous composition containing benzalkonium chloride, which is said to have "an unacceptable slippery feel, which rendered them unsuitable for marketing." *See* Reply Brief 1-3, together with Pregozen, column 7, lines 11-45.

We are not persuaded by this argument. Although Pregozen considers that the level of slippery feel of the resulting moistened wipe containing benzalkonium chloride may not be suitable for marketing, it does not indicate that the resulting moistened wipe containing benzalkonium chloride is not useful for "cleaning and delivering a cationic biocide to animate or inonius surfaces . . . ." Since a marketing trend tends to change with time and the moistened wipe having benzalkonium chloride is still effective for the Appellants' purpose, we are of the view that one of ordinary skill in the art would have been led to employ, *inter alia*, benzalkonium chloride as a cationic biocide in the moistened wipe taught by Pregozen. *In re Boe*, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966)(All of the disclosures in a reference, including non-preferred embodiments, "must be evaluated for what they fairly teach one of ordinary skill in the art."). There simply is nothing in Pregozen to suggest that "the line of development flowing from [its] disclosure is unlikely to be productive of the result sought by the applicant." *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994).

As to separately rejected claims 31 through 33, the Appellants state that:

> Claims 31-33 have been rejected over three and four-way combinations of still other tangentially related art; however,

> applicants concede that if the rejections of the claims of Groups II and III can be sustained over the combination of Pregozen and Noda et al., there is no point in contesting the rejection of claims 31-33. Brief at 9.

Thus, for the reasons set forth above, we determine that the subject matter defined by claims 31 through 33 would have been suggested by the prior art references of record.

Based on the totality of record, including due consideration of the Appellant's arguments, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of 35 U.S.C. § 103. Accordingly, we affirm the Examiner's decision rejecting the claims on appeal under 35 U.S.C. § 103.

V. CONCLUSION

The decision of the Examiner is affirmed.

VI. TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR §1.136(a).

AFFIRMED

tf

Patent Group GA030-43
Georgia-Pacific Corporation
133 Peachtree Street, N.E.
Atlanta, Ga 30303-1847